## **ABSTRACT**

A new class of processes suited to the fabrication of layered material compositions is disclosed. Layered material compositions are typically three-dimensional structures which can be decomposed into a stack of structured layers. The best known examples are the photonic lattices. The present invention combines the characteristic features of photolithography and chemical-mechanical polishing to permit the direct and facile fabrication of, e.g., photonic lattices having photonic bandgaps in the 0.1- $20\mu$  spectral range.